On the Constituency and Structure of Floating Numeral Quantifiers in Japanese
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Whether or not floating numeral quantifiers (FNQ) in Japanese forms a constituent with its host NP has been one of the topics discussed for more than decades. This work offers two set of novel evidence involving argument ellipsis (AE) and scrambling for the single constituent approach. In doing so, this work proposes that the structure of the constituent including the host NP and its FNQ (e.g., iPad-o 2-dai katta) is “[DP [DP [host NP] [CP FNQ]]],” where the FNQ, being a Cl(assifier) Phrase ([CP [NumP 2]-dai]), is adjoined to its host NP, and the host NP as a result functions as a lower segment of DP, rather than the more articulated structure proposed in Kawashima (1998).

Argument Ellipsis: Under the standard assumption that only arguments, but not adjuncts, are amenable to AE (Oku 1998, Saito 2007), one may be tempted to attribute the impossibility of eliding only the FNQ in (1)c to its adjunct status (Miyagawa 1989).

(1) a. [Mari-wa haha-ni iPad-o 2-dai katta]. [Ken-mo haha-ni iPad-o 2-dai katta].
   M.-TOP mom-DAT iPad-ACC 2-CL bought K.-also mom-DAT iPad-ACC 2-CL bought
   ‘Mari bought 2 iPads for (her) mother. Ken also bought 2 iPads for (his) mother.’

   b. [Mari-wa haha-ni iPad-o 2-dai katta]. [Ken-mo haha-ni iPad-o 2-dai katta].
   c. [Mari-wa haha-ni iPad-o 2-dai katta]. [Ken-mo haha-ni iPad-o 2-dai katta].
   d. [Mari-wa haha-ni iPad-o 2-dai katta]. [Ken-mo haha-ni iPad-o 2-dai katta].
   e. [Mari-wa haha-ni iPad-o 2-dai katta]. [Ken-mo iPad-o 2-dai katta].

   *[iPad-o] Ken-wa [Mari-ga Aya-ni tj (2-dai) ageta-to] omotta. (ippou.)
   iPad-ACC K.-TOP M.-NOM Aya-DAT 2-CL gave-C thought ontheotherhand
   iPad-ACC J.-TOP M.-NOM Aya-DAT 2-CL gave-C thought
   ‘[iPad, K. thought [that M. gave A. (2) tj]]. [iPad, J. thought [that M. gave A. (2) tj]].’

However, I show that the deviance should be attributed to the ban on extraction out of AE (2) (Shinohara 2006). Whatever mechanism that bans eliding a phrase that contains the trace of scrambling accounts for the deviance of (1)c and (2) in a unified fashion. Specifically, after the host NP has scrambled out of DP (host NP … [DP [DP [host NP] [CP FNQ]]]), or after the object has scrambled out of CP ([CP OBJ … [CP … [TOP … ] … ] … ]), the AE of DP and CP violates the ban on extraction out of AE. Note that (1)b and (1)d are both allowed under the single constituent approach because they can involve AE; (1)d involves a run-of-the-mill AE targeting the DP ([NumP 2-dai-CNQ]), and (1)b involves AE of a host NP which constitute the lower segment of the DP ([DP [DP [host NP] [CP FNQ]]) assuming that the lower segment can be the target of syntactic operations such as ellipsis and movement (Tanaka 2001, Yoshida 2010, a.o.).

Note that the deviance of (1)e in contrast to (1)d suggests that the legitimate ellipsis of FNQ does not involve the Principle of Minimal Compliance effect; the possible AE of IO will not save the ellipsis of FNQ in (1)e. This in turn suggests that it is not the possible AE of DO that saves the ellipsis of FNQ in (1)d. Note also that the AE paradigm in (1) provides a piece of evidence in favor for the simple structure for the single constituency of host NP and its FNQ ([DP [DP [host NP] [CP FNQ]]) rather than the articulated structure proposed in Kawashima (1998) ([NumP [DP [host NP] Num(FNQ])]). In terms of predicate-argument structure, the lower segment DP in [DP [DP [host NP] [CP FNQ]]] functions as an argument of a verb, but the host NP in [NumP [DP [host NP] Num(FNQ)] cannot be considered as such without some additional assumption; what is taken to be an argument is the NumP that fully contains the host NP. Even if we stipulate so that the host NP within NumP is an argument targeted for AE, then it erroneously allows the AE of the sort that targets the different layers of embedded CP with rich right periphery (e.g., [CP [CP [CP … ] C(no)] C(ka)] C(to))], which is totally impossible, as shown in (3)c–d.
(3) a. [Ken-wa [CP [CP [jibun-no oya-ga iPad-o katta]-no]-ka]-to] omotteita.
   K.-TOP self’s parents-NOM iPad-ACC bought-C(to)-C(to)thought

b. [Jun-mo [CP [CP [jibun-no oya-ga iPad-o katta]-no]-ka]-to] omotteita]
   J.-FOC self’s parents-NOM iPad-ACC bought-C(to)-C(to)thought

c. *[Jun-mo [CP [CP [jibun-no oya-ga iPad-o katta]-no]-ka]-to] omotteita]
   *[Jun-mo [CP [CP [jibun-no oya-ga iPad-o katta]-no]-ka]-to] omotteita]
       ‘[K. thought that his parents bought iPad], and
          Jun thought that her parents bought iPad, too.’

Scrambling: The single constituent approach offers a straightforward solution to why the so-called ban on “split” multiple long-distance scrambling (LDS), as evidenced in (4) (Sakai 1994), is inapplicable to a case involving FNQ and its host NP (5)c. Although scrambling in Japanese can (in principle) be unbounded, crossing more than two or more clausal boundaries (yielding (super-LDS) and can apply multiply (yielding multiple (super-LDS), there is a curious constraint: in case of multiple LDS, LDSed XPs cannot be “split” apart, in the sense that they cannot end up in different landing sites; rather, they need to be in the same landing site. (This holds true regardless of the category type; the otherwise possible multiple LDS involving argument and adjunct becomes impossible when they are “split” apart (Sohn 1994).) Recall that “split” multiple LDS involving FNQ and its host NP is grammatical (5)c. This is unexpected if the host NP and FNQ are independent constituents. However, under the single constituent hypothesis, we can account for its possibility; just like scrambling of NP out of scrambled CP is possible (([CP OBJ ... [CP ... OBJ ... t ... t ...])], what we see in (5)c is scrambling of host NP out of scrambled phrase composed of host NP and its FNQ (host NP ... [DP [DP=host[NP [CIP FNQ]] ... t ...])).

(4) a. *[iPad-ōj] Yui-ga [Aya-ni 2-dai Ken-wa [Mari-ga naze t_k t_k (2-dai) ageta-to]
   iPad-ACC Y.-NOM Aya-DAT Ken-M.-NOM why 2-CL gave-C
   omotta-ka] shiritagatteiru-yo]. ‘[Yui wants to know [Q Ken thought
   thought-Q wants.to know-SFP [that Mari gave Aya (2) iPad why]].’

b. *[Aya-ni 2-dai Ken-wa [Mari-ga naze t_k t_k (2-dai) ageta-to]
   iidomotta-ka] shiritagatteiru-yo]. ‘(same as (4)a)’

(5) a. [Yui-ga [iPad-ōj 2-dai Ken-wa [Mari-ga naze Aya-ni t_t t_t ageta-to]
   iidomotta-ka] shiritagatteiru-yo]. ‘(same as (4)a)’

b. [iPad-ōj 2-dai Ken-wa [Mari-ga naze Aya-ni t_t t_t ageta-to]
   iidomotta-ka] shiritagatteiru-yo]. ‘(same as (4)a)’

c. [iPad-ōj Yui-ga [2-dai Ken-wa [Mari-ga naze Aya-ni t_t t_t ageta-to]
   iidomotta-ka] shiritagatteiru-yo]. ‘(same as (4)a)’

FNQ-preposing (i.e., scrambling of FNQ) (6)b–c provides yet another piece of evidence in favor for the simple structure for the single constituency of host NP and its FNQ ([DP [DP host[NP [CIP FNQ]]] ... t ... ]) rather than the articulated structure proposed in Kawashima 1998 ([NumP [DP host[NP Num(FNQ)]]])).

(6) a. [Mari-wa haha-ni iPad-o 2-dai katta].
   M.-TOP mom-DAT iPad-ACC 2-CL bought ‘Mari bought 2 iPads for (her) mother.’

b. [Mari-wa 2-daii haha-ni iPad-o t_t katta]. FYI: Kawashima’s analysis:

c. [2-daii Mari-wahaha-ni iPad-o t_t katta]. ([NumP t_t 2-daii] ... iPad-ōj ... t_t)

In order to derive FNQ-preposing (which is known to be A’-movement (Boskovic & Takahashi 1998), under the articulated structure, we must employ remnant movement ([NumP t_t 2-daii]), but it is well-known that remnant movement is banned especially when it is A’-movement that creates the phrase to be remnant. The simplified structure faces no problem. Under this analysis, it is run-of-the-mill scrambling targeting CIP ([CIP [NumP 2-daii]], which a phrasal constituent.